**AMENDMENTS TO THE CLAIMS**

This listing of claims replaces all prior versions, and listings, of claims in the present application.

**IN THE CLAIMS**:

1. (Currently Amended) A mutant α-amylase obtained by making a substitution or deletion of at least one amino acid residue of specific positions in SEQ ID NO:1, or by making a substitution or deletion of at least one amino acid residue corresponding to the above-mentioned amino acid residue in a sequence having at least 70% homology to SEQ ID NO:1,

wherein said at least one amino acid residue is selected from the group consisting of:

the $11^{th}$ Tyr, $16^{th}$ Glu, $49^{th}$ Asn, $84^{th}$ Glu, $144^{th}$ Ser, $167^{th}$ Gln, $169^{th}$ Tyr, $178^{th}$ Ala, $188^{th}$ Glu, $190^{th}$ Asn, $205^{th}$ His and $209^{th}$ Gln, and

said mutant α-amylase possesses increased heat resistance and maintains resistance to chelating agents when compared to SEQ ID NO:1, and

said mutant α-amylase comprises an amino acid sequence which is at least 95% ~~70%~~ homologous to SEQ ID NO:1.

2. (Canceled).

3. (Currently Amended) A mutant α-amylase obtained by making a substitution of an amino terminal sequence from 1st Asp through 19th Gly of SEQ ID NO:1 or an amino terminal sequence corresponding to 1st Asp through 19th Gly of SEQ ID NO:1 of a sequence having at least 70% ~~95%~~ homology to SEQ ID NO:1, with an amino acid sequence from 1st His to 21st Gly of SEQ ID NO:2, wherein said mutant α-amylase possess increased heat resistance and maintains resistance to chelating agents when compared to SEQ ID NO:1.

4. (Canceled).

5. (Currently Amended) A mutant α-amylase obtained by introducing a first mutation and a second mutation into SEQ ID NO:1 or an amino acid sequence having at least 70% ~~95%~~ homology to SEQ ID NO:1,

wherein said first mutation consists of a substitution or a deletion of at least one amino acid residue selected from the group consisting of the 11th Tyr, 16th Glu, 49th Asn, 84th Glu, 144th Ser, 167th Gln, 169th Tyr, 178th Ala, 188th Glu, 190th Asn, 205th His and 209th Gln, and

wherein said second mutation consists of a substitution of an amino acid ~~a~~ sequence corresponding to 11 to 100 ~~the 11th to 100th~~ amino acid residues ~~residue~~ from the amino terminal Asp

residue ~~terminus~~ of the amino acid sequence set forth in SEQ ID NO:1, and

wherein said mutant α-amylase possesses increased heat resistance and maintains resistance to chelating agents when compared to SEQ ID NO:1.

6. (Currently Amended) ~~The~~ A mutant α-amylase obtained by introducing a first mutation and a second mutation into SEQ ID NO:1 or an amino acid sequence having at least 70% homology to SEQ ID NO:1 ~~according to Claim 5~~, wherein said first mutation consists of:

the substitution of an amino acid residue selected from the group consisting of: the 11$^{th}$ Tyr of SEQ ID NO:1 with Phe, the 16$^{th}$ Glu of SEQ ID NO:1 with Pro, the 49$^{th}$ Asn of SEQ ID NO:1 with Ser, the 167 Gln of SEQ ID NO:1 with Glu, the 169$^{th}$ Tyr of SEQ ID NO:1 with Lys, the 190$^{th}$ Asn of SEQ ID NO:1 with Phe, the 205$^{th}$ His of SEQ ID NO:1 with Arg, and the 209$^{th}$ Gln of SEQ ID NO:1 with Val,

and wherein said second mutation consists of:

substituting an amino terminal sequence from 1$^{st}$ Asp through 19$^{th}$ Gly of SEQ ID NO:1 with an amino acid sequence from 1$^{st}$ His to 21$^{st}$ Gly of SEQ ID NO:2.

7. (Withdrawn) A gene encoding the mutant α-amylase according to Claim 1 or a vector containing said gene.

8. (Withdrawn) Cells transformed by the vector according to Claim 7.

9. (Withdrawn) A process for producing a mutant α-amylase, comprising culturing the transformed cells according to Claim 8.

10. (Previously Presented) A detergent composition comprising the mutant α-amylase according to Claim 1.

11. (Canceled).

12. (Currently Amended) A mutant α-amylase obtained by making a substitution or deletion of at least one amino acid residue of specific positions in SEQ ID NO:1, or by making a substitution or deletion of at least one amino acid residue corresponding to the above-mentioned amino acid residue in a sequence having at least 70% ~~95%~~ homology to SEQ ID NO:1,

wherein said at least one amino acid residue is selected from the group consisting of:

the 11th Tyr, 16th Glu, 49th Asn, 84th Glu, 144th Ser, 167th Gln, 169th Tyr, 178th Ala, 188th Glu, 190th Asn, 205th His and 209th Gln, and

wherein said mutant α-amylase possesses increased heat resistance, which is ~~can be~~ improved by combining mutations when compared to SEQ ID NO:1, and maintains resistance to chelating agents and oxidizing agents when compared to SEQ ID NO:1, and

said mutant α-amylase comprises an amino acid sequence which is at least 95% homologous to SEQ ID NO:1.

13. (Currently Amended) A mutant α-amylase obtained by making a substitution or deletion of at least one amino acid residue of specific positions in SEQ ID NO:1, or by making a substitution or deletion of at least one amino acid residue corresponding to the above-mentioned amino acid residue in a sequence having at least 70% ~~95%~~ homology to SEQ ID NO:1,

wherein said at least one amino acid residue is selected from the group consisting of:

the 11th Tyr, 16th Glu, 49th Asn, 84th Glu, 144th Ser, 167th Gln, 169th Tyr, 178th Ala, 188th Glu, 190th Asn, 205th His and 209th Gln, and

wherein said mutant α-amylase:

(i) possesses increased heat resistance when compared to SEQ ID NO:1;

(ii) maintains resistance to chelating agents when compared to SEQ ID NO:1;

(iii) maintains high specific activity under alkaline conditions; and

(iv) comprises an amino acid sequence which is at least 95% homologous to SEQ ID NO:1

~~(i) decomposes α-1,4-glycoside bonds of starch, amylose, amylopectin, and partially decomposed products thereof;~~

~~(ii) produces glucose, maltose, maltotriose, maltotetraose, maltopentaose, maltohexaose, and maltoheptaose from amylose;~~

~~(iii) does not act on pullulan;~~

~~(iv) exhibits a residual activity of at least 70% in a pH range of 6.5 to 11 under treatment conditions of 40°C and 30 minutes;~~

~~(v) acts in a temperature range of 20°C to 80°C;~~

~~(vi) exhibits a residual activity of at least 80% when incubated at 40°C, or at least 60% when incubated at 45°C, for 30 minutes in 50 mM glycine-sodium hydroxide buffer at pH 10;~~

~~(vii) has a molecular weight of 55,000 ± 5,000 as measured by sodium dodecyl sulfate (SDS) polyacrylamide gel electrophoresis;~~

~~(viii) has an isoelectric point of about 4.2 as measured by isoelectric focusing;~~

~~(ix) has a residual activity of at least 90% when treated at pH 10 and 30°C for 30 minutes in a 0.1% solution of a surfactant selected from the group consisting of:~~

~~sodium linear alkylbenzenesulfonates, sodium alkylsulfates, sodium polyoxyethylene alkylsulfates, sodium α-olefinsulfonates, sodium salts of α-sulfonated fatty acid esters, sodium alkylsulfonates, SDS, soap, and Softanol;~~

~~(x) is inhibited by 1 mM $Mn^{2+}$ by about 75%, or by 1 mM $Sr^{2+}$ or 1 mM $Cd^{2+}$ by about 30 to 40%, when treated at pH 10 and 30°C for 30 minutes; and~~

~~(xii) comprises an amino acid sequence which is at least 95% homologous to SEQ ID NO.1~~.

14. (Canceled).

15. (Previously Presented) The mutant α-amylase according to claim 12, wherein the 11$^{th}$ Tyr of SEQ ID NO:1 is substituted with Phe, the 16$^{th}$ Glu of SEQ ID NO:1 is substituted with Pro, the 49$^{th}$ Asn of SEQ ID NO:1 is substituted with Ser, the 167 Gln of SEQ ID NO:1 is substituted with Glu, the 169$^{th}$ Tyr of SEQ ID NO:1 is substituted with Lys, the 190$^{th}$ Asn of SEQ ID NO:1 is substituted with Phe, the 205$^{th}$ His of SEQ ID NO:1 is substituted with Arg, and the 209$^{th}$ Gln of SEQ ID NO:1 is substituted with Val.

16. (Canceled).

17. (Currently Amended) The mutant α-amylase according to claim 13 ~~or 16~~, wherein the 11$^{th}$ Tyr of SEQ ID NO:1 is replaced with Phe.

18. (Currently Amended) The mutant α-amylase according to claim 13 ~~or 16~~, wherein the 16$^{th}$ Glu of SEQ ID NO:1 is replaced with Pro.

19. (Currently Amended) The mutant α-amylase according to claim 13 ~~or 16~~, wherein the 49$^{th}$ Asn of SEQ ID NO:1 is replaced with Ser.

20. (Currently Amended) The mutant α-amylase according to claim 13 ~~or 16~~, wherein the 167 Gln of SEQ ID NO:1 is replaced with Glu.

21. (Currently Amended) The mutant α-amylase according to claim 13 ~~or 16~~, wherein the 169$^{th}$ Tyr of SEQ ID NO:1 is replaced with Lys.

22. (Currently Amended) The mutant α-amylase according to claim 13 ~~or 16~~, wherein the 190$^{th}$ Asn of SEQ ID NO:1 is replaced with Phe.

23. (Currently Amended) The mutant α-amylase according to claim 13 ~~or 16~~, wherein the 205$^{th}$ His of SEQ ID NO:1 is replaced with Arg.

24. (Currently Amended) The mutant α-amylase according to claim 13 ~~or 16~~, wherein the 209$^{th}$ Gln of SEQ ID NO:1 is replaced with Val.

25. (Previously Presented) A mutant α-amylase obtained by introducing a mutation into SEQ ID NO:1,

wherein said mutation consists of:

the substitution of an amino acid residue selected from the group consisting of: the 11$^{th}$ Tyr, 16$^{th}$ Glu, 49$^{th}$ Asn, 84$^{th}$ Glu, 144$^{th}$ Ser, 167$^{th}$ Gln, 169$^{th}$ Tyr, 178$^{th}$ Ala, 188$^{th}$ Glu, 190$^{th}$ Asn, 205$^{th}$ His and 209$^{th}$ Gln, with another amino acid.

26. (Previously Presented) The mutant $\alpha$-amylase according to claim 25, wherein the 11$^{th}$ Tyr of SEQ ID NO:1 is substituted with Phe, the 16$^{th}$ Glu of SEQ ID NO:1 is substituted with Pro, the 49$^{th}$ Asn of SEQ ID NO:1 is substituted with Ser, the 167 Gln of SEQ ID NO:1 is substituted with Glu, the 169$^{th}$ Tyr of SEQ ID NO:1 is substituted with Lys, the 190$^{th}$ Asn of SEQ ID NO:1 is substituted with Phe, the 205$^{th}$ His of SEQ ID NO:1 is substituted with Arg, and the 209$^{th}$ Gln of SEQ ID NO:1 is substituted with Val.

27. (Previously Presented) A mutant $\alpha$-amylase obtained by introducing a mutation into SEQ ID NO:1,

and wherein said mutation consists of:

substituting an amino terminal sequence from 1$^{st}$ Asp through 19$^{th}$ Gly of SEQ ID NO:1 with an amino acid sequence from 1$^{st}$ His to 21$^{st}$ Gly of SEQ ID NO:2.

28. (New) A mutant α-amylase obtained by making a substitution or deletion of at least one amino acid residue of specific positions in SEQ ID NO:1,

wherein said at least one amino acid residue is selected from the group consisting of:

the $11^{th}$ Tyr, $16^{th}$ Glu, $49^{th}$ Asn, $84^{th}$ Glu, $144^{th}$ Ser, $167^{th}$ Gln, $169^{th}$ Tyr, $178^{th}$ Ala, $188^{th}$ Glu, $190^{th}$ Asn, $205^{th}$ His and $209^{th}$ Gln, and

said mutant α-amylase possesses increased heat resistance and maintains resistance to chelating agents when compared to SEQ ID NO:1, and

said mutant α-amylase comprises an amino acid sequence which is at least 95% homologous to SEQ ID NO:1.

29. (New) A mutant α-amylase obtained by making a substitution or deletion of at least one amino acid residue of specific positions in SEQ ID NO:4,

wherein said at least one amino acid residue is selected from the group consisting of:

the $11^{th}$ Tyr, $16^{th}$ Glu, $49^{th}$ Asn, $84^{th}$ Glu, $167^{th}$ Gln, $169^{th}$ Tyr, $178^{th}$ Ala, $188^{th}$ Glu, $190^{th}$ Asn, $205^{th}$ His and $209^{th}$ Gln, and

said mutant α-amylase possesses increased heat resistance and maintains resistance to chelating agents when compared to SEQ ID NO:1, and

said mutant α-amylase comprises an amino acid sequence which is at least 95% homologous to SEQ ID NO:4.